

SMP
AB

WHAT IS CLAIMED IS:

1. A method for use in a system having at least one
2 terminal, a network including the at least one terminal,
3 and terminating at least two communications links, the
4 method comprising:
5 a) accepting data from the network;
6 b) determining whether the data accepted concerns
7 establishing a connection or is part of an established
8 connection;
9 c) if it is determined that the data accepted
10 concerns establishing a connection, then
11 i) selecting one of the at least two
12 communications links based on a policy,
13 ii) assigning the selected one of the at least
14 two communications links to a session to be
15 associated with the data accepted, and
16 iii) forwarding the data accepted to the
17 selected one of the at least two communications
18 links; and
19 d) if it is determined that the data accepted is part
20 of an established connection, then forwarding the data
21 accepted to the assigned communications link.

1 2. The method of claim 1 wherein the data is a PPPoE
2 frame.

1 3. The method of claim 2 wherein the act of determining
2 whether the data accepted concerns establishing a
3 connection or is part of an established connection is based
4 on an Ether-type field of the PPPoE frame.

1 4. The method of claim 1 wherein if the data is a PPPoE
2 Active Discovery Initiation packet, then determining that
3 the data concerns establishing a connection.

1 5. The method of claim 1 wherein if the data is a packet
2 selected from a group of packets consisting of (a) a PADO
3 packet, (b) a PADR packet, (c) a PADS packet, and (d) a
4 session stage packet, then determining that the data is
5 part of an established connection.

1 6. The method of claim 1 further comprising:
2 c) if it is determined that the data accepted
3 concerns establishing a connection, then
4 iv) storing the selected one of the at least two
5 communications links and an associated session
6 ID.

1 7. The method of claim 6 further comprising:
2 c) if it is determined that the data accepted
3 concerns establishing a connection, then storing a
4 terminal ID.

1 8. The method of claim 1 wherein the policy upon which the
2 one of the at least two communications links is selected is
3 a function selected from a group of functions consisting of
4 (a) traffic, (b) past selection states, (c) a terminal
5 source of the accepted data, (d) a user associated with the
6 accepted data, (e) a time, (f) a present state of the at
7 least two communications links, and (g) a present state of
8 established sessions.

1 9. The method of claim 1 further comprising:
2 e) if it is determined that the data accepted is part
3 of an established connection, and that the data is a
4 request to terminate the connection, then freeing the
5 selected one of the at least two communications links.

1 10. The method of claim 6 further comprising:
2 e) if it is determined that the data accepted is part
3 of an established connection, and that the data is a
4 request to terminate the connection, then
5 i) freeing the selected one of the at least two
6 communications links, and
7 ii) permitting the stored selected one of the at
8 least two communications links and the associated
9 session ID to be overwritten.

1 11. A method of claim 1 wherein the connection is a
2 connection to a PPPoE session server.

1 12. A method for use in a system having at least one
2 terminal, a network including the at least one terminal,
3 and terminating at least two communications links, the
4 method comprising:

5 a) accepting data originating from the at least one
6 terminal and from the at least two communications
7 links; and
8 b) forwarding data towards the at least one terminal
9 and towards the at least two communications links,
10 wherein, upon receiving a session request from
11 the at least one terminal,
12 i) assigning one of the at least two
13 communications links based on a policy, and

1 13. The method of claim 12 wherein, upon receiving a
2 session offer, forwarding the session offer towards the
3 terminal which requested the session.

1 14. The method of claim 13 wherein, upon receiving a
2 session acceptance from the at least one terminal,
3 forwarding the session acceptance to the assigned one of
4 the at least two communications links.

1 15. The method of claim 14 wherein, upon receiving a
2 session confirmation, forwarding the session confirmation
3 towards the terminal which sent the session acceptance.

1 16. The method of claim 12 wherein, upon receiving a data
2 with an associated session identification, forwarding the
3 data to the one of the at least two communications links
4 associated with the session identification.

1 17. The method of claim 12 wherein the act of assigning
2 one of the at least two communications links based on a
3 policy, further includes,

1 18. The method of claim 12 wherein the act of forwarding
2 the session request to the assigned one of the at least two
3 communications links, further includes,

4 A) forwarding the session request and the
5 assigned communications link to a line
6 forwarding process, and
7 B) forwarding the session request from the
8 line forwarding process to the assigned
9 communications link.

1 19. The method of claim 12 wherein the policy upon which
2 the one of the at least two communications links is
3 selected is a function of factors selected from a group of
4 factors consisting of (a) traffic, (b) past selection
5 states, (c) a terminal source of the accepted data, (d) a
6 user associated with the accepted data, (e) a time, (f) a
7 present state of the at least two communications links, and
8 (g) a present state of established sessions.

1 20. A link selection unit for use in a system
2 (i) including a network including at least one terminal and
3 (ii) terminating at least two communications links, the
4 link selection unit comprising:
5 a) means for accepting data from the network;
6 b) means for determining a connection state based on
7 the data accepted;
8 c) means for selecting one of the at least two
9 communications links when the means for determining a
10 connection state determines that a connection has not
11 yet been established; and
12 d) means for forwarding data to a selected one of the
13 at least two communications links when the means for
14 determining a connection state determines that a
15 connection has already been established, and when the
16 means for selecting one of the at least two terminated

17 communications links selects one of the at least two
18 communications links.

1 21. The link selection unit of claim 20 further
2 comprising:
3 e) link termination units, each of the link
4 termination units terminating an associated one of the
5 at least two communications links.

1 22. The link selection unit of claim 21 wherein each of
2 the link terminations units is an ADSL terminating
3 unit-remote.

1 23. The link selection unit of claim 20 further
2 comprising:
3 e) a storage device for storing policies used by the
4 means for selecting one of the at least two
5 communications links to determine which of the at
6 least two communications links to select.

1 24. The link selection unit of claim 23 wherein the
2 policies are a function of factors selected from a group of
3 factors consisting of (a) traffic, (b) past selection
4 states, (c) a terminal source of the accepted data, (d) a
5 user associated with the accepted data, (e) a time, (f) a
6 present state of the at least two communications links, and
7 (g) a present state of established sessions.

1 25. The link selection unit of claim 23 further
2 comprising:
3 f) means for managing the policies stored in the
4 storage device.